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FLINT HILLS RESOURCES®

MATERIAL SAFETY DATA SHEET

1 CHEMICAL PRODUCT & COMPANY IDENTIFICATION

TRADE NAME(S)	**LEADED AVGAS**
CAS NUMBER	MIXTURE
MSDS NUMBER	5698
PRODUCT CODE	ND
SYNONYM(S)	80/87 AVIATION GASOLINE 100 LOW LEAD AVIATION GASOLINE AVGAS
MANUFACTURER / SUPPLIER	Flint Hills Resources, LP P.O. Box 64596 St. Paul, MN 55164-0596

TELEPHONE NUMBERS - 24 HOUR EMERGENCY ASSISTANCE

Chemtrec	800-424-9300
Flint Hills Resources, LP	651-437-0676

TELEPHONE NUMBERS - GENERAL ASSISTANCE

8-5 (M-F, CST)	651-437-0700
8-5 (M-F, CST) MSDS Assistance	316-828-7988

2 COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient Name	CAS Number	Concentration*	Exposure Limits / Health Hazards
ALKYLATE	68527-27-5	> 99 %	ND
N-HEXANE	110-54-3	0 - 1 %	500 ppm 8-Hour TWA (OSHA) 50 ppm 8-Hour TWA (ACGIH) ACGIH Skin Designation**
TETRAETHYL LEAD	78-00-2	< 0.1 %	0.075 mg/m3 8-Hour TWA (OSHA) 0.1 mg/m3 8-Hour TWA (ACGIH) OSHA Skin Designation**
DIBROMOETHANE	106-93-4	0 - 0.04 %	20 ppm 8-Hour TWA (OSHA) 30 ppm CEILING (OSHA)

*Values do not reflect absolute minimums and maximums; these values are typical which may vary from time to time.

COMPOSITION COMMENTS

** Dermal exposure to this chemical may add to the overall exposure, as it is readily absorbed through the skin.

This Material Safety Data Sheet is intended to communicate potential health hazards and potential physical hazards associated with the product(s) covered by this sheet, and is not intended to communicate product specification information. For product specification information, contact your Flint Hills Resources, LP representative.

HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

DANGER!

HEALTH HAZARDS
VAPORS MAY CAUSE EYE AND RESPIRATORY TRACT IRRITATION
BREATHING HIGH CONCENTRATIONS CAN CAUSE IRREGULAR HEARTBEATS WHICH MAY BE FATAL
MAY BE HARMFUL OR FATAL IF SWALLOWED
MAY CAUSE LUNG DAMAGE
OVEREXPOSURE MAY CAUSE CNS DEPRESSION
SEE "TOXICOLOGICAL INFORMATION" (SECTION 11) FOR MORE INFORMATION

FLAMMABILITY HAZARDS
EXTREMELY FLAMMABLE LIQUID AND VAPOR
VAPOR MAY CAUSE FLASH FIRE

REACTIVITY HAZARDS
STABLE

POTENTIAL HEALTH EFFECTS, SKIN

MODERATELY IRRITATING. Contact may cause reddening, itching and inflammation. Repeated or prolonged contact may result in drying, reddening, itching, pain, inflammation, cracking and possible secondary infection with tissue damage.

Skin contact may cause harmful effects in other parts of the body.

POTENTIAL HEALTH EFFECTS, EYE

IRRITATING. Contact may cause pain and severe reddening and inflammation of the conjunctiva. Effects may become more serious with repeated or prolonged contact.

POTENTIAL HEALTH EFFECTS, INHALATION

MODERATELY TOXIC. May cause central nervous system depression or effects. Symptoms may include headache, excitation, euphoria, dizziness, incoordination, drowsiness, light-headedness, blurred vision, fatigue, tremors, convulsions, loss of consciousness, coma, respiratory arrest and death, depending on the concentration and duration of exposure.

Breathing high concentrations of this material, for example, in a confined space or by intentional abuse, can cause irregular heartbeats which can cause death.

Overexposure to this material may cause systemic damage including target organ effects listed under "Toxicological Information" (Section 11).

POTENTIAL HEALTH EFFECTS, INGESTION

SLIGHTLY TO MODERATELY TOXIC. May cause irritation of the mouth, throat and gastrointestinal tract. Symptoms may include salivation, pain, nausea, vomiting and diarrhea.

Aspiration into lungs may cause chemical pneumonia and lung damage.

Exposure may also cause central nervous system symptoms similar to those listed under "Inhalation" (see Inhalation section).

4 FIRST AID MEASURES

SKIN

Immediately wash skin with plenty of soap and water while removing contaminated clothing and shoes. Get medical attention if irritation develops or persists.

Place contaminated clothing in closed container for storage until laundered or discarded. If clothing is to be laundered, inform person performing operation of contaminant's hazardous properties. Discard contaminated leather goods.

EYE

Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Get medical attention if irritation persists.

INHALATION

Remove to fresh air. If not breathing, institute rescue breathing. If breathing is difficult, ensure airway is clear and give oxygen.

Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.

INGESTION

Do not induce vomiting because of danger of aspirating liquid into lungs, causing serious damage and chemical pneumonitis. If spontaneous vomiting occurs, keep head below hips to prevent aspiration and monitor for breathing difficulty. Never give anything by mouth to an unconscious person.

Keep affected person warm and at rest. Get immediate medical attention.

NOTES TO PHYSICIAN

INHALATION: This material (or a component) sensitizes the myocardium to the effects of sympathomimetic amines. Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in individuals exposed to this material. Administration of sympathomimetic drugs should be avoided.

INGESTION: If ingested this material represents a significant aspiration and chemical pneumonitis hazard. Induction of emesis is not recommended.

5 FIRE FIGHTING MEASURES

HAZARDOUS COMBUSTION PRODUCTS

Combustion may produce COx, NOx, SOx, reactive hydrocarbons, irritating vapors, and other decomposition products in the case of incomplete combustion.

EXTINGUISHING MEDIA

Use water spray, dry chemical, carbon dioxide or fire-fighting foam for Class B fires to extinguish fire.

BASIC FIRE FIGHTING PROCEDURES

Material will burn in a fire.

Shut off source of flow if possible.

Evacuate area and fight fire from a safe distance.

If leak or spill has not ignited, ventilate area and use water spray to disperse gas or vapor and to protect personnel attempting to stop a leak. Use water spray to cool adjacent structures and to protect personnel.

Containers can build up pressure if exposed to heat (fire). Stay away from storage tank ends. Withdraw immediately in case of rising sound from venting safety device or any discoloration of storage tank due to fire.

Be aware that a BLEVE (Boiling Liquid Expanding Vapor Explosion) may occur unless surfaces are kept cool with water.

Firefighters must wear NIOSH approved positive pressure breathing apparatus (SCBA) with full face mask and full protective equipment.

UNUSUAL FIRE & EXPLOSION HAZARDS

Extremely flammable. Vapors form flammable or explosive mixtures with air at room temperature. Vapor or gas may spread to distant ignition sources and flash back.

Explosion hazard if exposed to extreme heat.

Flash Point	-50 °F (-45.6 °C)
Autoignition Temperature	> 700 °F (> 371.1 °C)
Flammability Limits in Air, Lower, % by Volume	1.3 %
Flammability Limits in Air, Upper, % by Volume	7.1 %

6 ACCIDENTAL RELEASE MEASURES

EMERGENCY ACTION

Eliminate and/or shut off ignition sources and keep ignition sources out of the area. Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind. Isolate for 800 meters (1/2 mile) in all directions if tank, rail car or tank truck is involved in fire. Evacuate area endangered by release as required. (See Exposure Controls/Personal Protection, Section 8.)

ENVIRONMENTAL PRECAUTIONS

Eliminate all sources of ignition. Isolate hazard area and deny entry.

If material is released to the environment, take immediate steps to stop and contain release. Caution should be exercised regarding personnel safety and exposure to the released material. Notify local authorities and the National Response Center, if required.

SPILL OR LEAK PROCEDURE

Keep unnecessary people away. Isolate area for at least 50 meters (150 feet) to preserve public safety. For large spills, consider initial evacuation for at least 300 meters (1000 feet).

Keep ignition sources out of area and shut off all ignition sources. Absorb spill with inert material (e. g. dry sand or earth) then place in a chemical waste container. Large Spills: Dike far ahead of liquid spill for later disposal.

Use a vapor suppressing foam to reduce vapors. Stop leak when safe to do so.

See Exposure Controls/Personal Protection (Section 8).

7 HANDLING & STORAGE

HANDLING

Ground lines and equipment used during transfer to reduce the possibility of static spark-initiated fire or explosion. Use non-sparking tools. Do not cut, grind, drill, weld or reuse containers unless adequate precautions are taken against these hazards.

Do not eat, drink or smoke in areas of use or storage.

STORAGE

Store in tightly closed containers in a cool, dry, isolated, well-ventilated area away from heat, sources of ignition and incompatibles. Avoid contact with strong oxidizers.

Empty containers may contain material residue. Do not reuse without adequate precautions.

Do not eat, drink or smoke in areas of use or storage.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS

Ventilation and other forms of engineering controls are the preferred means for controlling exposures.

EYE PROTECTION: PERSONAL PROTECTION EQUIPMENT (PPE)

Keep away from eyes. Eye contact can be avoided by using chemical safety glasses, goggles, and/or face shield. Have eye washing facilities readily available where eye contact can occur.

SKIN PROTECTION: PERSONAL PROTECTION EQUIPMENT (PPE)

Avoid skin contact with this material. Use appropriate chemical protective gloves when handling. Additional protective clothing may be necessary.

Good personal hygiene practices such as properly handling contaminated clothing, using wash facilities before entering public areas and restricting eating, drinking and smoking to designated areas are essential for preventing personal chemical contamination.

RESPIRATORY PROTECTION: PERSONAL PROTECTION EQUIPMENT (PPE)

A NIOSH approved air purifying respirator with an appropriate cartridge or canister, such as an organic vapor cartridge, may be used in circumstances where airborne concentrations may exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

9 PHYSICAL & CHEMICAL PROPERTIES

ODOR AND APPEARANCE

80/87 AVGAS IS A CLEAR RED LIQUID WITH A GASOLINE ODOR, 100 LOW LEAD IS A CLEAR BLUE LIQUID WITH A GASOLINE ODOR

Boiling Point	*80 °F (26.7 °C)*
Specific Gravity	0.685 - 0.7 at 60/60 °F (15.6/15.6 °C)
Percent Volatile	ND
Vapor Pressure	5.5 - 7 psia at 100 °F (38 °C)
Evaporation Rate	MODERATELY FAST
Vapor Density	3 - 4
Viscosity	ND
Solubility in Water	INSOLUBLE

Octanol/Water Partn	ND
Volatile Organic	ND
Pour Point	ND
pH Value	ESSENTIALLY NEUTRAL
Bulk Density	ND
Freezing Point	-115 °F (-81.7 °C)
Molecular Formula	MIXTURE
Molecular Weight	NA
Chemical Family	HYDROCARBON MIXTURE
Odor Threshold	ND

10 STABILITY & REACTIVITY

STABILITY/INCOMPATIBILITY

Incompatible with oxidizing agents. See precautions under Handling & Storage (Section 7).

HAZARDOUS REACTIONS/DECOMPOSITION PRODUCTS

Combustion may produce COx, NOx, SOx, reactive hydrocarbons, irritating vapors, and other decomposition products in the case of incomplete combustion.

11 TOXICOLOGICAL INFORMATION

ROUTES OF EXPOSURE

Inhalation, ingestion, skin and eye contact.

TOXICOLOGICAL DATA

NAPHTHAS: In a large epidemiological study on over 15,000 employees at several petroleum refineries and amongst residents located near these refineries, no increased ricks of kidney cancer was observed in association with gasoline exposures (a similar material). In a similar study, no increased risk of kidney cancer was observed among petroleum refinery workers, but there was a slight trend in the incidence of kidney cancers among service station employees, especially after a 30-year latency period.

N-HEXANE: Long-term or repeated exposure to n-hexane can cause peripheral nerve damage. Initial symptoms are numbness of the fingers and toes. Also, motor weakness can occur in the digits, but may also involve muscles of the arms, thighs and forearms. The onset of these symptoms may be delayed for several months to a year after the beginning of exposure.

ISOPARAFFINS: Studies in laboratory animals have shown that long-term exposure to similar materials (isoparaffins) can cause kidney damage and kidney cancer in male laboratory rats. However, indepth research indicates that these findings are unique to the male rat, and that these effects are not relevant to humans.

TETRAETHYL LEAD: Tetraethyl lead is rapidly absorbed via inhalation, oral and dermal routes of exposure. In acute over-exposure, the primary target organ of tetraethyl lead is the nervous system. Acute exposures may cause pronounced neurological symptoms including ataxia, visual difficulties, weakness, hypotension, tremors, disorientation, and in some cases delusions and maniacal behavior. Other adverse effects observed from acute poisoning and/or repeated or prolonged over-exposure include degeneration of the myocardium, encephalopathy, polyneuropathy, damage to the liver and kidney, and anemia. An increased incidence of fetal death was observed in pregnant rodents exposed to tetraethyl lead. Reduced immune function has also been observed in laboratory animals exposed to tetraethyl lead.

Exposure to this material may cause adverse effects or damage to the following organs or organ systems: central nervous system, peripheral nervous system, skin, eyes, heart, testes, liver, kidneys, and respiratory tract.

PRE-EXISTING CONDITIONS AGGRAVATED BY EXPOSURE

Pre-existing medical conditions which may be aggravated by exposure include disorders of the peripheral nervous system, skin, liver, kidneys, and respiratory tract.

12 ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

ND

13 DISPOSAL CONSIDERATIONS

WASTE DISPOSAL

This material, as supplied, when discarded or disposed of, is a listed hazardous waste according to Federal Regulations 40 CFR 261.33(f) due to its lead content, and a characteristic hazardous waste due to its ignitability as defined in Subpart C of 40 CFR 261. Additionally, pursuant to 40 CFR 261.33(d) and (e), any residue remaining in a container that has held this material and any residue or contaminated soil, water or other debris resulting from the cleanup of a spill of this material is also a listed hazardous waste. Under RCRA, it is the responsibility of the user of the material to determine, at the time of disposal, whether the material meets RCRA criteria for hazardous waste.

The transportation, storage, treatment and disposal of RCRA waste material must be conducted in compliance with 40 CFR 262, 263, 264, 268 and 270. Disposal can occur only in properly permitted facilities. Check state and local regulations for any additional requirements as these may be more restrictive than federal laws and regulations. Chemical additions, processing or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate. Disposal of this material must be conducted in compliance with all federal, state and local regulations.

14 TRANSPORT INFORMATION

BILL OF LADING - BULK (U. S. DOT)

Gasoline, 3, UN1203, PG II,

BILL OF LADING - NON-BULK (U. S. DOT)

Gasoline, 3, UN1203, PG II

U. S. Department of Transportation (DOT) Requirements

General Transportation Information for Bulk Shipments

Proper Shipping Name	Gasoline		
Hazard Class	3	UN/NA Code	UN1203
Packaging Group	II		
Labels Required	Flammable Liquid		
Placards Required	Flammable Liquid, UN1203		
Reportable Quantity	See Regulatory Information (Section 15)		

General Transportation Information for Non-Bulk Shipments

Proper Shipping Name	Gasoline
UN/NA Code	*UN1203*
Packaging Group	II
Labels Required	Flammable Liquid
Placards Required	Flammable Liquid, UN1203
Reportable Quantity	See Regulatory Information (Section 15)

COMMENTS

The above description may not cover shipping in all cases, please consult 49 CFR 100-185 for specific shipping information.

15 REGULATORY INFORMATION

FEDERAL REGULATIONS

All ingredients are on the TSCA inventory, or are not required to be listed on the TSCA inventory.

Consult OSHAs Lead Standard 29 CFR 1910.1025 for provisions on training, monitoring, medical surveillance, etc.

A release of this material, as supplied, may be exempt from reporting under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA - 40 CFR 302) by the petroleum exclusion. Releases may be reportable to the National Response Center (800-424-8802) under the Clean Water Act, 33 U.S.C. 1321(b)(3) and (5).

This material, as supplied, contains tetraethyl lead, an Extremely Hazardous Substance as per 40 CFR Part 355, and is therefore, subject to release reporting requirements. The reportable quantity for tetraethyl lead is 10 pound(s).

This material contains toxic chemical(s) in excess of the applicable de minimis concentration that are subject to the annual toxic chemical release reporting requirements of the Superfund Amendments and Reauthorization Act. (SARA) Section 313 (40 CFR 372). This information must be included in all MSDSs that are copied and distributed for this material.

This material contains one or more substances listed as hazardous air pollutants under Section 112 of the Clean Air Act. This material contains up to 100% volatile organic compounds (VOCs) per 40 CFR Part 51.100. This material contains up to 2% hazardous air pollutants (HAPs) per Section 112 Clean Air Act Amendments of 1990.

Check local, regional or state/provincial regulations for any additional requirements as these may be more restrictive than federal laws and regulations. Failure to report may result in substantial civil and criminal penalties.

STATE REGULATIONS

WARNING: This material contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

SARA 311/312 HAZARD CATEGORIES

Immediate Hazard:	X	Delayed Hazard:	X	Fire Hazard:	X	Pressure Hazard:	-
Reactivity Hazard:	-						

NFPA RATINGS

Health	2	Flammability	4	Reactivity	0	Special Hazards	-

HMIS RATINGS

Health	2*	Flammability	4	Reactivity	0

Following ingredients of this material are listed in SARA 313 above the de minimis concentration

SARA Listed Ingredient Name	CAS Number	Maximum %
N-HEXANE	110-54-3	1.0

16 OTHER INFORMATION

DISCLAIMER

NOTICE: The information presented herein is based on data considered to be accurate as of the date of preparation of this Material Safety Data Sheet. However, an MSDS may not be used as a commercial specification sheet of manufacturer or seller, and no warranty or representation, expressed or implied, is made as to the accuracy or comprehensiveness of the foregoing data and safety information, nor is any authorization given or implied to practice any patented invention without a license. In addition, no responsibility can be assumed by vendor for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices, or from any hazards inherent in the nature of the material.

SECTIONS / SUBSECTIONS CHANGED

COMPOSITION / INFORMATION ON INGREDIENTS: COMPOSITION COMMENTS
FIRE FIGHTING MEASURES: BASIC FIRE FIGHTING PROCEDURES
FIRE FIGHTING MEASURES: HAZARDOUS COMBUSTION PRODUCTS
HAZARDS IDENTIFICATION: EMERGENCY OVERVIEW
STABILITY & REACTIVITY: HAZARDOUS REACTIONS/DECOMPOSITION PRODUCTS
TOXICOLOGICAL INFORMATION: TOXICOLOGICAL DATA
TRANSPORT INFORMATION: BILL OF LADING - BULK (U. S. DOT)
TRANSPORT INFORMATION: BILL OF LADING - NON-BULK (U. S. DOT)

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Completed By Flint Hills Resources, LP - Operations EH&S